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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/883,485

06/18/2001

Ullrich Sakowsky

927-076US (09685 US)

1196

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7590

07/13/2004

AKIN GUMP STRAUSS HAUER & FELD L.L.P.  
ONE COMMERCE SQUARE  
2005 MARKET STREET, SUITE 2200  
PHILADELPHIA, PA 19103-7013

EXAMINER

JAGAN, MIRELLYS

ART UNIT

PAPER NUMBER

2859

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No. 09/883,485	Applicant(s) SAKOWSKY ET AL.	
	Examiner Mirellys Jagan	Art Unit 2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 April 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 12-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/14/04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings received on 4/14/04 are approved.

### ***Claim Objections***

2. Claims 1-11 are objected to because of the following informalities:

There is lack of antecedent basis in the specification for the temperature sensor being mounted to the conductors by using a paste. The original specification discloses that the temperature sensor is mounted to the outer side of the tube by the paste, and is connected to the end of the cable via the conductors, i.e., the temperature sensor is a thin-film resistor and the conductors are its electrical leads. The specification does not disclose the resistor being connected to its conductors by a paste (see page 1, lines 22-27; and page 2, lines 11-12). Furthermore, it is not clear how the cable is “mechanically” affixed to the sensor, since there is no mechanism disclosed in the original disclosure for affixing the cable to the sensor. From the original disclosure, the examiner has interpreted this term to be synonymous with ‘physically’.

Claims 2-11 are objected to for being dependent on an objected base claim. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent 2062860 to Diprose et al [hereinafter Diprose] in view of U.S. Patent 6,354,736 to Cole et al [hereinafter Cole].

Diprose discloses a device comprising:

a surface-mountable resistance temperature sensor (2) securely attached to an outer side of a tube section so as not to shift radially or axially;

a hollow housing (12) surrounding the section of the tube with a spacing therefrom for insulating the sensor; and

a connection cable (not shown, but inherently present since it is needed for obtaining temperature measurements from the sensor) electrically and mechanically affixed to the sensor and guided through an opening (also not shown) in the housing;

wherein the temperature sensor is mounted on the section using a thermally and electrically good-conducting paste (grease) (see figure 2B; page 1, lines 68-72 and 116-128; and page 2, lines 45-53).

Diprose discloses that any shape of resistance temperature sensor may be used, but is silent as to the particular type of resistance sensor, and therefore does not disclose the resistance temperature sensor being a platinum thin-film resistor mounted on conductive tracks, wherein the resistor is connected to a connection cable via the tracks.

Cole discloses a resistance sensor comprising a thin-film resistor (11) mounted on conductive tracks (15) mounted along a surface being measured. The resistor is mounted on the

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tracks by bonding or connecting thereon, and is connected to a connection cable (17) via the tracks for processing signals obtained by the sensor. The resistance sensor is made using a Pt resistor in the prior art. Cole teaches that the resistance sensor is useful for measuring the temperature on a surface (see figure 1b; and column 2, lines 25-33).

Referring to claim 1, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device disclosed by Diprose by replacing the resistance sensor with a resistance sensor since Cole teaches that a platinum thin-film resistor mounted on conductive tracks is also useful for measuring the temperature of a surface.

Furthermore, the term “good-conducting” is considered to be a relative term, and since the specification does not provide a standard for ascertaining the requisite degree, the grease disclosed by Diprose is considered to be electrically “good-conductive”.

5. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,971,452 to Finney in view of Cole and Diprose.

Finney discloses a device comprising:

a surface-mountable resistance temperature sensor (28) securely attached to an outer side of a tube section so as not to shift radially or axially;

a hollow housing (18) surrounding the section of the tube with a spacing therefrom for insulating the sensor; and

a connection cable (24, 34, 35) electrically and mechanically affixed to the sensor and guided through an opening in the housing.

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Finney discloses that the resistance temperature sensor may be a thin-film-type, but is silent as to the particular structure of the resistance sensor, and therefore does not disclose the resistance temperature sensor being a platinum thin-film resistor mounted on conductive tracks, wherein the resistor is connected to a connection cable via the tracks; and the temperature sensor being mounted on the tube section using a thermally and electrically good-conducting paste.

Cole discloses a resistance sensor comprising a thin-film resistor (11) mounted on conductive tracks (15) mounted along a surface being measured. The resistor is mounted on the tracks by bonding or connecting thereon, and is connected to a connection cable (17) via the tracks for processing signals obtained by the sensor. The resistance sensor is made using a Pt resistor in the prior art. Cole teaches that the resistance sensor is useful for measuring the temperature on a surface (see figure 1b; and column 2, lines 25-33).

Diprose discloses a device comprising a surface-mountable resistance temperature sensor (2) securely attached to an outer side of a tube section in a hollow housing (12). The temperature sensor is mounted on the section using a thermally and electrically good-conducting paste (grease) in order to provide better thermal contact between the sensor and the surface of the section, i.e., excludes air pockets therebetween (see figure 2B; page 1, lines 68-72 and 116-128; and page 2, lines 45-53).

Referring to claim 1, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device disclosed by Finney by replacing the resistance sensor with a resistance sensor as taught by Cole, since Cole teaches that such a resistive sensor is useful for measuring the temperature of a surface.

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Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device disclosed by Finney by mounting the sensor on the tube using a paste, as taught by Diprose, in order to provide better thermal contact between the sensor and the surface of the section. Also, the term “good-conducting” is considered to be a relative term, and since the specification does not provide a standard for ascertaining the requisite degree, the paste disclosed by Diprose is considered to be electrically “good-conductive”.

6. Claims 1-6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 2,967,429 to Taylor in view of Cole and Diprose.

Taylor discloses a device comprising:

- a. temperature-sensing means comprising:
  - i. a surface-mountable temperature sensor (34, 35) securely attached to an outer side of a tube section (16) so as not to shift radially or axially;
  - ii. a connection cable electrically and mechanically affixed to the sensor; and
  - iii. processing means (54) for obtaining a temperature measurement from the sensor; and
- b. a hollow housing (40) that surrounds the tube section with a spacing therefrom and houses and insulates the sensor therein;

wherein the connection cable is guided through an opening (38) in the hollow housing (40) and clamped therein so as not to move; the tube is positioned axially in the housing using

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two spaced apart rings (60, 62); and the device is used on a tube section that is attached to other tube sections at its ends forming a one-piece tube.

Taylor does not disclose the temperature sensing means comprising a resistance temperature sensor mounted along the tube section comprising a platinum thin-film resistor mounted on conductive tracks; a connection cable connected to the resistor via the tracks; the sensor being mounted on the tube by thermally and electrically good-conducting paste; and the ends of the other tube sections having flanges; and the tubes being made of ceramic materials.

Cole discloses temperature-sensing means comprising a thin-film resistor (11) mounted on conductive tracks (15) mounted along a surface being measured; a connection cable (17) connected to the sensor via the tracks; and processing means (not shown) for obtaining a temperature measurement sensed by the resistor. The resistor is mounted on the tracks by bonding or connecting thereon, and is made using a Pt resistor in the prior art. Cole teaches that the resistance sensor is useful for measuring the temperature on a surface (see figure 1b; and column 2, lines 25-33).

Diprose discloses a device comprising a surface-mountable resistance temperature sensor (2) securely attached to an outer side of a tube section in a hollow housing (12). The temperature sensor is mounted on the section using a thermally and electrically good-conducting paste (grease) in order to provide better thermal contact between the sensor and the surface of the section, i.e., excludes air pockets therebetween (see figure 2B; page 1, lines 68-72 and 116-128; and page 2, lines 45-53).

Referring to claim 1, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device disclosed by Taylor by replacing the



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temperature sensing means with temperature sensing means as taught by Cole, since Cole teaches that such temperature-sensing means are useful for measuring the temperature of a surface.

Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device disclosed by Taylor by mounting the sensor on the tube using a paste, as taught by Diprose, in order to provide better thermal contact between the sensor and the surface of the section. Also, the term “good-conducting” is considered to be a relative term, and since the specification does not provide a standard for ascertaining the requisite degree, the paste disclosed by Diprose is considered to be electrically “good-conductive”.

Referring to claim 6, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device disclosed by Taylor, Cole, and Diprose by adding flanges to the all of the tube sections in order to provide more surface area for securing the sections together.

Referring to claim 11, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the device disclosed by Taylor, Cole, and Diprose on tubes made of other materials since the device of Taylor, Cole, and Diprose is capable of measuring temperatures of other surfaces, such as ceramic, depending on the particular tubing encountered by a user.

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7. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor, Cole, and Diprose, as applied to claims 1-6 and 11 above, and further in view of U.S. Patent 5,980,102 to Stulen et al [hereinafter Stulen].

Taylor, Cole, and Diprose disclose a device having all of the limitations of claims 7-10, as stated above in paragraph 6, except for the housing being formed by two separate semi-cylindrical parts that are connected to each other by the claimed hinge means.

Stulen discloses a device for measuring a temperature in a pipeline, the device comprising temperature sensors enclosed in a cylindrical housing. The housing is formed of two cylindrical parts connected together by a hinge running parallel to the axis of the pipeline, and provided with a sealing device diametrically opposite to the hinge formed by a pair of hooks that catch in a pair of recesses/grooves on the opposing housing part (see figure 2).

Referring to claim 7, it would have been obvious to one having ordinary skill in the art at the time the invention was made modify the device disclosed by Taylor, Cole, and Diprose by providing a hinged housing as taught by Stulen, in order to facilitate installing and removing the housing.

Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made modify the device disclosed by Taylor, Cole, Diprose, and Stulen by changing the location of the opening to a location along the separation line of the hinged parts between the hooks since the courts have held that there is no invention in shifting the position if the operation of the device would not be thereby modified. See *In re Japikse*, 86 USPQ 70 (CCPA 1950). In this case, relocating the opening to the claimed location will not modify the operation of the temperature-sensing means.

***Response to Arguments***

8. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents disclose a temperature sensor for the exterior of a conduit.

U.S. Patent 3,874,239 to Finney

U.S. Patent 6,158,886 to Ducher et al

U.S. Patent 3,901,080 to Hilborn

U.S. Patent 6,641,304 to Ang et al

U.S. Patent 2,048,680 to Bird et al

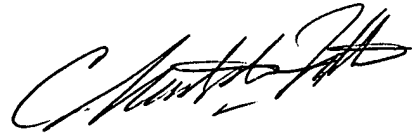
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mirellys Jagan whose telephone number is 571-272-2247. The examiner can normally be reached on Monday-Friday from 9AM to 4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ  
July 8, 2004

A handwritten signature in black ink, appearing to read 'C. W. Fulton', with a stylized flourish at the end.

**CHRISTOPHER W. FULTON  
PRIMARY EXAMINER**